YAWS IN MANCHESTER *

BY

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Yaws is found in underdeveloped areas lying between the Tropics of Cancer and Capricorn. It is a contagious treponematosis usually affecting non-white communities living in primitive and impoverished circumstances in areas of heavy rainfall, lush vegetation, and high humidity. Infection is probably spread by direct contact in childhood and is facilitated by abrasions of the sweat-sodden skin unprotected by the almost complete absence of clothing. The primary lesion, when noted, is commonly found on the feet, legs, or buttocks, and is followed by the secondary stage which is characterized by multiple papillomata, often yellow-crusted and fly-covered and always highly infectious. Bone lesions—periostitis and osteitis—occur as late secondary and tertiary manifestations causing pain, and often inability to work. Destructive skin lesions, juxta-articular nodes, ganglion, and bursitis are typical tertiary lesions. Hyperkeratoses of the soles and palms may be infectious and are often painful, preventing the sufferer from working, a feature of great economic and epidemiological importance in areas where the incidence is high. In the absence of adequate treatment, which for various reasons has seldom been possible in endemic areas in the past, relapses are common and much morbidity and impoverishment result. Yaws is rarely a direct cause of death and late involvement of the cardio-vascular and central nervous systems is generally thought not to occur. The behaviour of the standard serological tests is essentially similar in yaws and syphilis. Bony deformity, commonly of the tibiae, and " cigarette-paper " scars on the lower extremities are suggestive evidence of previous infection in individuals who have grown up in endemic yaws areas. The infection and its non-venereal method of spread are widely recognized by the affected communities ; some believe that childhood yaws prevents venereal syphilis later in life and may therefore deliberately encourage the infection of the children and refuse treatment until after the secondary stage has passed. For those who have experience of both venereal syphilis in civilized communities and of yaws " at the end of the road ", the " unitarian " hypothesis of Hudson (1946) has much to commend it ; it seems likely that in yaws we see the original non-venereal treponematosis of primitive man, which, modified by civilization and environment, can now only spread by the intimate contact of sexual intercourse in adults and thus manifest itself as venereal syphilis.

In tropical countries the areas in which yaws is endemic are usually well demarcated and in such parts venereal syphilis is reported to be rare. The differentiation between yaws and syphilis is thus assisted by and sometimes rests on geographical location. This factor is only of value as long as the population remains static ; it ceases to be of assistance when individuals leave their native homes to journey long distances particularly overseas. In recent years there has been a considerable immigration from West Africa and the West Indies to England; and Manchester, like other major centres of industry, has received an influx of workers from places in which yaws is, or was until recently, endemic. These men are particularly exposed to venereal disease after their arrival in England as they are usually without friends in a strange land and seek sexual outlet amongst the prostitutes and the most promiscuous " amateurs ". They provide a considerable proportion of the cases of gonorrhoea and non-gonococcal urethritis currently treated in the V.D. departments of Manchester and many present themselves time and again with fresh infections. Although infectious venereal syphilis is almost unknown in the Manchester area at present, serological tests for syphilis are not infrequently found to be positive in such coloured patients ; in interpreting the significance of these positive tests,

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the possibility of their having arisen as a result of yaws in childhood or adolescence has been considered. This point is not solely of academic interest, as a firm diagnosis of old yaws will modify the amount of treatment thought necessary and the ultimate prognosis for the individual, and will attenuate anxiety if the patient, as frequently happens, ceases treatment prematurely. Differentiation is also important in the relatively few female coloured patients who have been found in the course of routine antenatal testing. Furthermore, these patients from the Colonies are tending artificially to maintain the figures for late syphilis in the annual returns sent to the Ministry of Health, and further experience may point to the desirability of modifying the form of the return to include late yaws as a separate item.

Experience in Manchester

Impressed by the medico-social problem provided in Manchester by the presence of the immigrants from West Africa and the West Indies, and having had my interest in yaws stimulated by study of the condition in Ceylon and Thailand, I have looked into the current records of the coloured patients attending St. Luke's Clinic and the V.D. Department of the Royal Infirmary, Manchester, in whom serological tests for syphilis had given a confirmed positive result. The nationality of these 48 patients (45 males and 3 females) was :

West Indian	12
West African	30
Ceylonese	1
Indian	1
No data	4
Total	48

Their ages ranged from 21 to 45 years (average 28·2); eighteen were aged between 20–25 years, fourteen 26–30 years, and sixteen were over 30 years old.

Serological testing had been undertaken for the following reasons :

Routine in gonorrhoea or urethritis	34
Herpes genitalis	1
Epididymitis	1
Rash (secondary syphilis)	1
Investigation by medical unit	4
Patient requested blood test	3
Routine antenatal test	3
No data	1
Total	48

Old periostitis of the tibia with residual thickening and irregularity about the middle of the tibial shaft was noted in thirteen cases. Suggestive scarring was present on the legs alone in eleven, legs and abdomen in one, and legs and trunk in one. Tibial periostitis and scarring were found together in nine patients, periostitis without scars in four, and scarring alone in two.

The standard serological tests gave the following results :

Wassermann Reaction	
High titre (1 : 8 or greater dilution)	17
Low titre (less than 1 : 8 dilution)	26
Negative	5
Kahn Test	
Positive	47
Doubtful	1
Negative	0

Fourteen patients (eleven males and three females) knew that they had had yaws, and six of these had had a few injections for it. Two patients had been infected at 7 years, one at 11 years, and the other ten " as a child ". Three gave a history of yaws in parents or siblings. Ten denied having had yaws and in 24 no information was available.

The nationality of the fourteen patients with a definite history of yaws was :

	Male	Female
West Indian	0	2
West African	8	0
Ceylonese	0	1
No data	3	0

Only four of these presented tibial changes on clinical examination.

The history and clinical findings suggest that the positive serological tests were due to yaws in 26 cases (23 males, three females); their nationality was as follows :

	Male	Female
West Indian	5	2
West African	15	—
Ceylonese	—	1
No data	3	—
Total	23	3

The eldest was aged 40 and the youngest 22 (average 28·5). Ten were aged 20 to 25 years, seven 26 to 30 years, and nine were over 30 years of age.

The results of serological tests in these 26 patients were :

Wassermann Reaction	
High titre	10
Low titre	14
Negative	2
Kahn Test	
Positive	26
Doubtful	0
Negative	0

Discussion

The differentiation between late yaws and syphilis is difficult and sometimes impossible in persons

born and bred in yaws areas who have subsequently lived a promiscuous sexual life in more highly civilized communities. In consequence the diagnosis reached in some of the cases analysed above is by no means dogmatic. It is confidently felt, however, that yaws is the true diagnosis in at least half of the 48 patients studied. One patient had unequivocal evidence of secondary syphilis; one had herpes genitalis (dark-field negative); but the remaining 46 had neither genital ulceration nor scars. No case presented a clinical cardiovascular lesion, and except for tibial changes, none showed any stigmata of congenital syphilis.

The 26 patients thought to be examples of late yaws included two patients in whom knee and ankle reflexes were absent without other evidence of tabes dorsalis. One was a Nigerian, aged 36 years, with well-marked tibial changes, and the second was a Jamaican, aged 40, with typical tibial changes and scarring of the legs who stated that a sibling had had yaws. Neither had been treated in childhood and superinfection or neurological damage from yaws are interesting speculations. A third in this group was a Jamaican, aged 32, who had leprosy, and, on investigation for headache, was found to have a positive Wassermann reaction in both blood and cerebrospinal fluid. The treponemal immobilization test was also positive, and there were suggestive scars over the trunk and legs and a history of yaws, untreated, in childhood.

It will be noted that in many of the 48 cases the titre of the positive tests was not high and this observation at first seems to favour yaws infection of 15 to 20 years' duration rather than early latent acquired syphilis. However, in view of the age and composition of the series, these patients were old enough to have acquired syphilis some 10 or more years before our investigation took place.

Yaws normally affects both sexes almost equally with a slight predominance in boys. The sex distribution in the present series is quite artificial, as the sample is drawn from immigrants amongst whom males strongly predominate.

The impression was gained that more of the West Indians than the West Africans were born and grew up in towns rather than rural villages; this would favour a higher incidence of yaws in the immigrants from West Africa.

It is felt that, in the interpretation of positive serological findings, the possibility of yaws should be considered in all coloured patients seen in England who have emigrated from countries in which yaws is known to be endemic. It may also rarely have to be considered in white patients who have spent some of their childhood in such countries. The latter possibility is illustrated by a case seen personally in Suffolk in 1953. The patient, born in October, 1945, was taken to East Africa some 5 months later. He suffered various illnesses including malaria, and when 1 year old developed a lesion on the dorsum of the right foot which was excised under general anaesthesia. He returned to England in March, 1948, and remained in England until July, 1952, when he sailed to West Africa to spend the summer vacation with his parents. On board ship on his way *to* West Africa he developed bilateral tibial periostitis and an eruption on the trunk which responded dramatically to one injection of penicillin. On his return to England with his parents in September, 1952, a radiograph of the tibial periostitis, which was still painful, was reported as " syphilitic periostitis ". Radiography also showed similar involvement of the bones of the forearms and thighs. The Wassermann reaction and Kahn test were positive but both parents and his elder brother were completely negative on clinical and serological examination. The bone pain settled with penicillin treatment and when I first saw him in August, 1953, aged almost 8 years, there were no stigmata of congenital syphilis other than periosteal thickening of both tibiae. The permanent incisor teeth were normal. A scar was present over the dorsum of the right foot where the lesion had occurred in 1946. The patient has had further treatment with penicillin, and is clinically well, but the serological tests remain positive although the cerebrospinal fluid is normal. There seems no doubt that this is a genuine example of yaws in a white child.

Summary

The influx of immigrants from West Africa and the West Indies to Manchester has been reflected in the increased number of coloured male patients seen in the V.D. clinics. A considerable number of these men have positive serological tests for syphilis and there is evidence in some cases that the serological results arise from childhood infection with yaws in their native land. A case of a white child is reported in which yaws was acquired as a toddler in East Africa. It is suggested that in the interpretation of positive serological tests in coloured immigrants, yaws should be considered in differential diagnosis.

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